

2) de Koning, S. H., "The MCR system-multiple channel amplification of reverberation," *Philips Tech. Rev.*, vol. 41, pp 12-23, 1983/84

3) A. Krokstad, Electroacoustic means of controlling auditorium acoustics, *Applied Acoustics* vol. 24, pp 275-288, 1988

4) NZ93/00041, "Wideband assisted reverberation system," Industrial Research Ltd, May 20, 1993

5) M. A. Poletti, "On controlling the apparent absorption and volume in assisted reverberation systems," *Acustica*, vol. 78, p 61-73, 1993

6) M. A. Poletti, "An improved assisted reverberation system," *Proceedings of the 12th Biennial Conference of the New Zealand Acoustical Society*, 2nd and 3rd September, 1993, pp 107-115

7) H. Kuttruff, Room Acoustics, Applied Science Publishers, 1973

8) M. R. Schroeder, "Natural sounding artificial reverberation," *J. Audio Eng. Soc.*, vol. 10, no. 3, pp 219-223, July 1962

9) J Jot, "Digital delay networks for designing artificial reverberators," *90th convention of the Audio Engineering Society*, February 19-22, Paris 1991, preprint 3030

10) J Stautner and M. Puckette, "Designing multi channel reverberators," *Computer Music Journal*, vol. 6, no. 1, pp 52-65, 1982

I claim:

1. A multi-channel reverberation system comprising:

multiple signal inputs, one for each input channel;

a number of feed back comb filter networks connected one to each signal input, each comb filter network including a feed forward stage to provide a substantially constant multi-channel power gain at audio frequencies;

a cross-coupling network cross-coupling the comb filters to increase the reverberation echo density;

and multiple signal outputs, one for each output channel.

2. A multi-channel reverberation system according to claim 1, wherein the feed forward stage of the comb filters provides a transfer function matrix which is unitary at each frequency in the audio range.

3. A multi-channel reverberation system according to claim 1, wherein the cross-coupling matrix is an orthogonal cross-coupling matrix cross-coupling a number of single channel allpass comb filters, positioned immediately before or after the delay lines, to create a multi-channel allpass comb filter with a unitary transfer function matrix at all frequencies.

\* \* \* \* \*